# THE ASTROPHYSICAL JOURNAL CONTENTS OF VOLUME 567, PART 1

### 2002 MARCH 1, NUMBER 1

	Page
EDITORIAL: NEW SCIENTIFIC EDITORS FOR THE ASTROPHYSICAL JOURNAL Robert C. Kennicutt, Jr.	1
MASTER OF THE COSMIC MICROWAVE BACKGROUND ANISOTROPY POWER SPECTRUM: A FAST METHOD FOR STATISTICAL ANALYSIS OF LARGE AND COMPLEX COSMIC MICROWAVE BACKGROUND DATA SETS	2
Eric Hivon, Krzysztof M. Górski, C. Barth Netterfield, Brendan P. Crill, Simon Prunet, & Frode Hansen	
ON THE PROBABILITY DISTRIBUTION OF COSMOLOGICAL MICROLENSING OPTICAL DEPTHS $J.\ S.\ B.\ Wyithe\ \&\ E.\ L.\ Turner$	18
GRAVITY AND NONGRAVITY MODES IN THE VIRMOS-DESCART WEAK-LENSING SURVEY Ue-Li Pen, Ludovic Van Waerbeke, & Yannick Mellier	31
X-RAY SPECTROSCOPY OF QUASI-STELLAR OBJECTS WITH BROAD ULTRAVIOLET ABSORPTION LINES	37
S. C. Gallagher, W. N. Brandt, G. Chartas, & G. P. Garmire	
A CANDIDATE OF A TYPE 2 QUASI-STELLAR OBJECT AT $z=0.9$ : LARGE X-RAY ABSORPTION WITH A STRONG BROAD H $\alpha$ EMISSION LINE Masayuki Akiyama, Yoshihiro Ueda, & Kouji Ohta	42
SPECTRAL ENERGY DISTRIBUTIONS OF 3C 279 REVISITED: BeppoSAX OBSERVATIONS AND	50
VARIABILITY MODELS  L. Ballo, L. Maraschi, F. Tavecchio, A. Celotti, G. Fossati, G. Ghisellini, E. Pian, C. M. Raiteri, G. Tagliaferri, A. Treves, C. M. Urry, & M. Villata	
INTRINSIC ABSORPTION IN THE QSO FIRST J121442.3 + 280329 Martijn de Kool, Robert H. Becker, Michael D. Gregg, Richard L. White, & Nahum Arav	58
THE METALLICITY OF THE REDSHIFT 4.16 QUASAR BR 2248 – 1242 Craig Warner, Fred Hamann, Joseph C. Shields, Anca Constantin, Craig B. Foltz, & Frederic H. Chaffee	68
IS THERE AN ADVECTION-DOMINATED ACCRETION FLOW IN RADIO GALAXIES WITH DOUBLE-PEAKED BALMER LINES?  Tohru Nagao, Takashi Murayama, Yasuhiro Shioya, & Yoshiaki Taniguchi	73
ON TIME-DEPENDENT X-RAY REFLECTION BY PHOTO!ONIZED ACCRETION DISKS: IMPLICATIONS FOR F6 K $\alpha$ LINE REVERBERATION STUDIES OF ACTIVE GALACTIC NUCLEI Sergei Nayakshin & Demosthenes Kazanas	85
NESTED AND SINGLE BARS IN SEYFERT AND NON-SEYFERT GALAXIES © Seppo Laine, Isaac Shlosman, Johan H. Knapen, & Reynier F. Peletier	97
DISCOVERY OF A VERY EXTENDED EMISSION-LINE REGION AROUND THE SEVFERT 2 GALAXY NGC 4388	118
Michitoshi Yoshida, Masafumi Yagi, Sadanori Okamura, Kentaro Aoki, Youichi Ohyama, Yutaka Komiyama, Naoki Yasuda, Masanori Iye, Nobunari Kashikawa, Mamoru Doi, Hisanori Furusawa, Masaru Hamabe, Masahiko Kimura, Masayuki Miyazaki, Satoshi Miyazaki, Fumiaki Nakata, Masami Ouchi, Maki Sekiguchi, Kazuhiro Shimasaku, & Hiroshi Ohtani	
CONFRONTATION OF INTRACLUSTER AND INTERSTELLAR GAS IN CLUSTER-CENTERED ELLIPTICAL GALAXIES: M87 IN VIRGO AND NGC 4874 IN COMA Fabrizio Brighenti & William G. Mathews	130
CONSTRAINTS ON THE SIZE EVOLUTION OF BRIGHTEST CLUSTER GALAXIES Amy E. Nelson, Luc Simard, Dennis Zaritsky, Julianne J. Dalcanton, & Anthony H. Gonzalez	144
THE ANGULAR CLUSTERING OF GALAXY PAIRS Leopoldo Infante, Michael A. Strauss, Neta A. Bahcall, Gillian R. Knapp, Robert H. Lupton, Rita S. J. Kim, Michael S. Vogeley, J. Brinkmann, Istvan Csabai, Masataka Fukugita, Gregory Hennessy, Željko Ivezić, Don Q. Lamb, Brian C. Lee, Jeffrey R. Pier, & D. G. York	155
TEMPERATURE PROFILES OF NEARBY CLUSTERS OF GALAXIES Sabrina De Grandi & Silvano Molendi	163

	WINGSTRUCTURE IN THE COMA CHISTER, CLANTS WERGIS DWARES	Page
	SUBSTRUCTURE IN THE COMA CLUSTER: GIANTS VERSUS DWARFS Scott A. Edwards, Matthew Colless, Terry J. Bridges, Dave Carter, Bahram Mobasher, & Bianca M. Poggianti	178
•	CHANDRA OBSERVATIONS OF GALAXY CLUSTER A2218  Marie E. Machacek, Mark W. Bautz, Claude Canizares, & Gordon P. Garmire	188
]	MAGNETIC FIELDS IN CLUSTER CORES: FARADAY ROTATION IN A400 AND A2634  Jean A. Eilek & Frazer N. Owen	202
-	COLD DUST IN LATE-TYPE VIRGO CLUSTER GALAXIES  Cristina C. Popescu, Richard J. Tuffs, Heinrich J. Völk, Daniele Pierini, & Barry F. Madore	221
1	LIMITS ON THE MASS OF THE CENTRAL BLACK HOLE IN 16 NEARBY BULGES  Marc Sarzi, Hans-Walter Rix, Joseph C. Shields, Daniel H. McIntosk, Luis C. Ho, Gregory Rudnick, Alexei V. Filippenko, Wallace L. W. Sargent, & Aaron J. Barth	237
,	THE ARECIBO DUAL-BEAM SURVEY: THE H ! MASS FUNCTION OF GALAXIES  Jessica L. Rosenberg & Stephen E. Schneider	247
	THE STAR FORMATION HISTORY OF THE BLUE COMPACT DWARF GALAXY UGCA 290 Mary M. Crone, Regina E. Schulte-Ladbeck, Laura Greggio, & Ulrich Hopp	258
	SPECTROSCOPY OF BLUE SUPERGIANTS IN THE SPIRAL GALAXY NGC 300 © Fabio Bresolin, Wolfgang Gieren, Rolf-Peter Kudritzki, Grzegorz Pietrzyński, & Norbert Przybilla	277
	MULTIWAVELENGTH STRUCTURAL MANIFESTATIONS OF FAST MAGNETOHYDRODYNAMIC DENSITY WAVES IN SPIRAL GALAXIES Yu-Qing Lou, Wilfred M. Walsh, J. L. Han, & Zuhui Fan	289
	GLOBULAR CLUSTER SYSTEMS IN FOUR BRIGHTEST CLUSTER GALAXIES: A262, A3560, A3565, AND A3742 Waldemar M. M. Okoń & William E. Harris	294
	THE GALACTIC DISK MASS BUDGET. II. BROWN DWARF MASS FUNCTION AND DENSITY Gilles Chabrier	304
	MONITORING THE EVOLUTION OF THE X-RAY REMNANT OF SN 1987A Sangwook Park, David N. Burrows, Gordon P. Garmire, John A. Nousek, Richard McCray, Eli Michael, & Svetozar Zhekov	314
	EXTRASOLAR MICROMETEORS RADIATING FROM THE VICINITY OF THE LOCAL INTERSTELLAR BUBBLE  David D. Meisel, Diego Janches, & John D. Mathews	323
	PULSAR SCINTILLATION IN THE LOCAL INTERSTELLAR MEDIUM: LOOP I AND BEYOND N. D. Ramesh Bhat & Yashwant Gupta	342
	FAR ULTRAVIOLET SPECTROSCOPIC EXPLORER OBSERVATIONS OF O VI OVERLYING THE SCUTUM SUPERSHELL N. C. Sterling, B. D. Savage, P. Richter, D. Fabian, & K. R. Sembach	354
	A NEW SPIN ON GALACTIC DUST Angėlica de Oliveira-Costa, Max Tegmark, Douglas P. Finkbeiner, R. D. Davies, Carlos M. Gutierrez, L. M. Haffner, Aled W. Jones, A. N. Lasenby, R. Rebolo, Ron J. Reynolds, S. L. Tufte, & R. A. Watson	363
	COAGULATION AS UNIFYING ELEMENT FOR INTERSTELLAR POLARIZATION Gerhard Wurm & Martin Schnaiter	370
	CARBON MONOXIDE OBSERVATIONS OF SMALL DARK GLOBULES. I. INTERNAL STRUCTURE H. G. Kim & S. S. Hong	376
	OBSERVATIONS OF H <sub>3</sub> <sup>+</sup> IN THE DIFFUSE INTERSTELLAR MEDIUM  B. J. McCall, K. H. Hinkle, T. R. Geballe, G. H. Moriarty-Schieven, N. J. Evans II, K. Kawaguchi, S. Takano, V. V. Smith, & T. Oka	391
	A SEARCH FOR FINE STRUCTURE WITHIN THE 4430 Å DIFFUSE INTERSTELLAR BAND Theodore $P.\ Snow$	407
	INFRARED SPACE OBSERVATORY OBSERVATIONS OF THE UNIDENTIFIED 30 MICRON FEATURE IN PROTO-PLANETARY NEBULAE  Kevin Volk, Sun Kwok, Bruce J. Hrivnak, & Ryszard Szczerba	412
	CHANDRA OBSERVATIONS OF HIGH-MASS YOUNG STELLAR OBJECTS IN THE MONOCEROS R2 MOLECULAR CLOUD (B)  M. Kohno, K. Koyama, & K. Hamaguchi	423
	EVIDENCE FOR ACCRETION: HIGH-RESOLUTION X-RAY SPECTROSCOPY OF THE CLASSICAL T TAURI STAR TW HYDRAE  Joel H. Kastner, David P. Huenemoerder, Norbert S. Schulz, Claude R. Canizares, & David A. Weintraub	434

	n
TRANSIENT ABSORPTION FEATURES IN GAMMA-RAY BURSTS AND THEIR IMPLICATIONS FOR GAMMA-RAY BURST PROGENITORS ©  M. Böttcher, C. L. Fryer, & C. D. Dermer	Page 441
AFTERGLOW UPPER LIMITS FOR FOUR SHORT-DURATION, HARD SPECTRUM GAMMA-RAY BURSTS K. Hurley, E. Berger, A. Castro-Tirado, J. M. Castro Cerón, T. Cline, M. Feroci, D. A. Frail, F. Frontera, N. Masetti, C. Guidorzi, E. Montanari, D. H. Hartmann, A. Henden, S. E. Levine, E. Mazets, S. Golenetskii, D. Frederiks, G. Morrison, A. Oksanen, M. Moilanen, HS. Park, P. A. Price, J. Prochaska, J. Trombka, & G. Williams	447
BROAD AND SHIFTED IRON-GROUP EMISSION LINES IN GAMMA-RAY BURSTS AS TESTS OF THE HYPERNOVA SCENARIO  G. C. McLaughlin, R. A. M. J. Wijers, G. E. Brown, & H. A. Bethe	454
ACCRETION DISK TORQUED BY A BLACK HOLE Li-Xin Li	463
RELATIVISTIC SELF-SIMILAR DISKS Mike J. Cai & Frank H. Shu	477
FORMATION OF THE BLACK HOLE IN NOVA SCORPII Philipp Podsiadlowski, Ken'ichi Nomoto, Keiichi Maeda, Takayoshi Nakamura, Paolo Mazzali, & Brian Schmidt	491
STUDY OF THE CIRCINUS X-1 BROADBAND SPECTRUM AT ORBITAL PHASES CLOSE TO THE APOASTRON  R. Iaria, T. Di Salvo, N. R. Robba, & L. Burderi	503
HOT SPOT EMISSION FROM A FREELY PRECESSING NEUTRON STAR Jeremy S. Heyl & Lars Hernquist	510
DETERMINATION OF NUCLEOSYNTHETIC YIELDS OF SUPERNOVAE AND VERY MASSIVE STARS FROM ABUNDANCES IN METAL-POOR STARS YZ. Qian & G. J. Wasserburg	515
THE NUCLEOSYNTHETIC SIGNATURE OF POPULATION III   A. Heger & S. E. Woosley	532
SIGNATURES OF CONVECTION IN THE SPECTRUM OF PROCYON: FUNDAMENTAL PARAMETERS AND IRON ABUNDANCE  Carlos Allende Prieto, Martin Asplund, Ramón J. García López, & David L. Lambert	544
FREQUENCY DECOMPOSITION OF ASTROMETRIC SIGNATURE OF PLANETARY SYSTEMS Maciej Konacki, Andrzej J. Maciejewski, & Alex Wolszczan	566
DAMPING OF TERRESTRIAL-PLANET ECCENTRICITIES BY DENSITY-WAVE INTERACTIONS WITH A REMNANT GAS DISK  Craig B. Agnor & William R. Ward	579
STRUCTURE AND INSTABILITIES OF AN IRRADIATED VISCOUS PROTOPLANETARY DISK $Hideko\ Nomura$	587
DYNAMICS AND ORIGIN OF THE 2:1 ORBITAL RESONANCES OF THE GJ 876 PLANETS Man Hoi Lee & S. J. Peale	596
MICROWAVE DETECTION OF SHOCK AND ASSOCIATED ELECTRON BEAM FORMATION H. Aurass, K. Shibasaki, M. Reiner, & M. Karlický	610
ENERGETIC PARTICLE OBSERVATIONS DURING THE 2000 JULY 14 SOLAR EVENT John W. Bieber, Wolfgang Dröge, Paul A. Evenson, Roger Pyle, David Ruffolo, Udomsilp Pinsook, Paisan Tooprakai, Manit Rujiwarodom, Thiranee Khumlumlert, & Säm Krucker	622
NUMERICAL ANALYSIS OF JETS PRODUCED BY INTENSE LASER Akira Mizuta, Shoichi Yamada, & Hideaki Takabe	635
ASTROPHYSICAL REACTION RATE OF $^{12}$ C( $\alpha$ , $\gamma$ ) $^{16}$ O R. Kunz, M. Fey, M. Jaeger, A. Mayer, J. W. Hammer, G. Staudt, S. Harissopulos, & T. Paradellis	643
MEASUREMENTS OF CONVERSION RATES OF CO TO CO <sub>2</sub> IN ULTRAVIOLET-INDUCED REACTION OF D <sub>2</sub> O(H <sub>2</sub> O)/CO AMORPHOUS ICE Naoki Watanabe & Akira Kouchi	651

## 2002 MARCH 10, NUMBER 2

657

HUBBLE SPACE TELESCOPE IMAGING IN THE CHANDRA DEEP FIELD-SOUTH. II.	
WFPC2 OBSERVATIONS OF AN X-RAY FLUX-LIMITED SAMPLE FROM THE 1 MILLION	
WITCE OBSERVATIONS OF AN A-RAT FLOX-LIMITED SAMPLE FROM THE I MILLION	
CECOND CHANDRA CATALOG	
SECOND CHANDRA CATALOG	
Anton M. Koekemoer, Norman A. Grogin, Ethan I. Schreier, R. Giacconi, R. Gilli, I. Kewley, C. Norman, A. Zirm	

Anton M. Koekemoer, Norman A. Grogin, Ethan J. Schreier, J. Bergeron, P. Rosati, G. Hasinger, P. Tozzi, & A. Marconi

	Page
CALTECH FAINT GALAXY REDSHIFT SURVEY. XVI. THE LUMINOSITY FUNCTION FOR GALAXIES IN THE REGION OF THE HUBBLE DEEP FIELD-NORTH TO $z=1.5$ $\textcircled{B}$ Judith G. Cohen	672
THE Ly $\alpha$ FOREST OF A LYMAN BREAK GALAXY: VERY LARGE TELESCOPE SPECTRA OF MS 1512—cB58 AT $z=2.724$ © S. Savaglio, N. Panagia, & P. Padovani	702
THE EFFECTS OF AN IONIZING BACKGROUND ON THE H 1 COLUMN DENSITY DISTRIBUTION IN THE LOCAL UNIVERSE Edvige Corbelli & Rino Bandiera	712
THE MASS FUNCTION OF AN X-RAY FLUX-LIMITED SAMPLE OF GALAXY CLUSTERS  Thomas H. Reiprich & Hans Böhringer	716
NUMERICAL CONVERGENCE OF PHYSICAL VARIABLES IN HYDRODYNAMICAL SIMULATIONS OF COOLING CLUSTERS $\it R. Valdarnini$	741
NONTHERMAL X-RAY EMISSION: AN ALTERNATIVE TO CLUSTER COOLING FLOWS? Ian G. McCarthy, Michael J. West, & Gary A. Welch	762
A PHOTOMETRIC AND SPECTROSCOPIC STUDY OF DWARF AND GIANT GALAXIES IN THE COMA CLUSTER. V. DEPENDENCE OF THE SPECTROSCOPIC PROPERTIES ON LOCATION IN THE CLUSTER	772
David Carter, Bahram Mobasher, Terry J. Bridges, Bianca M. Poggianti, Y. Komiyama, N. Kashikawa, M. Doi, M. Iye, S. Okamura, M. Sekiguchi, K. Shimasaku, M. Yagi, & N. Yasuda	
THE X-RAY-RADIO ALIGNMENT IN THE $z=2.2$ RADIO GALAXY PKS $1138-262$ C. L. Carilli, D. E. Harris, L. Pentericci, H. J. A. Röttgering, G. K. Miley, J. D. Kurk, & Wil van Breugel	781
ULTRAVIOLET IMAGING POLARIMETRY OF THE PECULIAR SEYFERT 2 GALAXY MARKARIAN 477  (E)  Makoto Kishimoto, Laura E. Kay, Robert Antonucci, Todd W. Hurt, Ross D. Cohen, & Julian H. Krolik	790
ON QUASAR DISTANCES AND LIFETIMES IN A LOCAL MODEL $M.\ B.\ Bell$	801
IS THERMAL EXPANSION DRIVING THE INITIAL GAS EJECTION IN NGC 6251? Fulvio Melia, Siming Liu, & Marco Fatuzzo	811
THE EVOLUTION OF CUSPY TRIAXIAL GALAXIES HARBORING CENTRAL BLACK HOLES Kelly Holley-Bockelmann, J. Christopher Mihos, Steinn Sigurdsson, Lars Hernquist, & Colin Norman	817
SPECTRA AND GROWTH RATES OF FLUCTUATING MAGNETIC FIELDS IN THE KINEMATIC DYNAMO THEORY WITH LARGE MAGNETIC PRANDTL NUMBERS Alexander A. Schekochihin, Stanislav A. Boldyrev, & Russell M. Kulsrud	828
GLOBULAR CLUSTER SYSTEMS AND THE MISSING SATELLITE PROBLEM: IMPLICATIONS FOR COLD DARK MATTER MODELS Patrick Côté, Michael J. West, & Ronald O. Marzke	853
HUBBLE SPACE TELESCOPE IMAGING OF BIPOLAR NUCLEAR SHELLS IN THE DISTURBED VIRGO CLUSTER GALAXY NGC 4438  Jeffrey D. P. Kenney & Elizabeth E. Yale	865
HUBBLE SPACE TELESCOPE OBSERVATIONS OF THE COMETARY BLUE COMPACT DWARF GALAXY UGC 4483: A RELATIVELY YOUNG GALAXY?  Yuri I. Izotov & Trinh X. Thuan	875
X-RAY EMISSION FROM A MERGER REMNANT, NGC 7252 (THE "ATOMS-FOR-PEACE" GALAXY) Hisamitsu Awaki, Hironori Matsumoto, & Hiroshi Tomida	892
HUBBLE SPACE TELESCOPE IMAGING OF A PECULIAR STELLAR COMPLEX IN NGC 6946 Søren S. Larsen, Yuri N. Efremov, Bruce G. Elmegreen, Emilio J. Alfaro, Paolo Battinelli, Paul W. Hodge, & Tom Richtler	896
THE STELLAR POPULATIONS OF THE CETUS DWARF SPHEROIDAL GALAXY  A. Sarajedini, E. K. Grebel, A. E. Dolphin, P. Seitzer, D. Geisler, P. Guhathakurta, P. W. Hodge,  I. D. Karachentsev, V. E. Karachentseva, & M. E. Sharina	915
Lyα LINE FORMATION IN STARBURSTING GALAXIES. II. EXTREMELY THICK, DUSTLESS, AND STATIC H 1 MEDIA Sang-Hyeon Ahn, Hee-Won Lee, & Hyung Mok Lee	922
THE EVOLUTION OF HELIUM AND HYDROGEN IONIZATION CORRECTIONS AS H II REGIONS AGE Ruth Gruenwald, Gary Steigman, & Sueli M. Viegas	931

vii

	Page
DETECTION OF H I 21 CENTIMETER LINE ABSORPTION IN THE WARM NEUTRAL MEDIUM AND IN THE OUTER ARM OF THE GALAXY  K. S. Dwarakanath, C. L. Carilli, & W. M. Goss	940
TIME-DEPENDENT, MULTIFLUID, MAGNETOHYDRODYNAMIC SHOCK WAVES WITH GRAIN DYNAMICS. I. FORMULATION AND NUMERICAL TESTS  Glenn E. Ciolek & Wayne G. Roberge	947
AMBIPOLAR DRIFT IN A TURBULENT MEDIUM  Ellen G. Zweibel	962
MICROSTRUCTURE OF WATER MASERS IN W3 IRS 5 Hiroshi Imai, Shuji Deguchi, & Tetsuo Sasao	971
METHANOL AND SILICON MONOXIDE OBSERVATIONS TOWARD BIPOLAR OUTFLOWS ASSOCIATED WITH CLASS 0 OBJECTS  Guido Garay, Diego Mardones, Luis F. Rodríguez, Paola Caselli, & Tyler L. Bourke	980
DISCOVERY OF REFLECTION NEBULOSITY AROUND FIVE VEGA-LIKE STARS Paul Kalas, James R. Graham, Steven V. W. Beckwith, David C. Jewitt, & James P. Lloyd	999
OBSERVATIONS OF T TAURI STARS USING THE HUBBLE SPACE TELESCOPE GHRS. II. OPTICAL AND NEAR-ULTRAVIOLET LINES David R. Ardila, Gibor Basri, Frederick M. Walter, Jeff A. Valenti, & Christopher M. Johns-Krull	1013
BATSE OBSERVATIONS OF GAMMA-RAY BURST TAILS Valerie Connaughton	1028
SPECTRAL CONSEQUENCES OF DEVIATION FROM SPHERICAL COMPOSITION SYMMETRY IN TYPE Ia SUPERNOVAE  R. C. Thomas, Daniel Kasen, David Branch, & E. Baron	1037
RELATIVISTIC DISKOSEISMOLOGY. III. LOW-FREQUENCY FUNDAMENTAL p-MODES Manuel Ortega-Rodriguez, Alexander S. Silbergleit, & Robert V. Wagoner	1043
OBSERVATIONAL SIGNATURES OF BLACK HOLES: SPECTRAL AND TEMPORAL FEATURES OF XTE J1550 – 564  Lev Titarchuk & C. R. Shrader	1057
LONG-TERM ROSSI X-RAY TIMING EXPLORER MONITORING OF ANOMALOUS X-RAY PULSARS Fotis P. Gavriil & Victoria M. Kaspi	1067
SPECTRA OF THE EXPANSION STAGE OF X-RAY BURSTS Nickolai Shaposhnikov & Lev Titarchuk	1077
X-RAY SPECTRAL AND TIMING OBSERVATIONS OF CYGNUS X-2 S. Piraino, A. Santangelo, & P. Kaaret	1091
HIGH-RESOLUTION CHANDRA HETGS AND ROSSI X-RAY TIMING EXPLORER OBSERVATIONS OF GRS 1915+105: A HOT DISK ATMOSPHERE AND COLD GAS ENRICHED IN IRON AND SILICON Julia C. Lee, Christopher S. Reynolds, Ronald Remillard, Norbert S. Schulz, Eric G. Blackman, & Andrew C. Fabian	1102
RELATIVISTIC r-MODES IN SLOWLY ROTATING NEUTRON STARS: NUMERICAL ANALYSIS IN THE COWLING APPROXIMATION Shijun Yoshida & Umin Lee	1112
POLARIS: AMPLITUDE, PERIOD CHANGE, AND COMPANIONS Nancy Remage Evans, Dimitar D. Sasselov, & C. Ian Short	1121
THEORETICAL LIMB DARKENING FOR PULSATING CEPHEIDS  Massimo Marengo, Dimitar D. Sasselov, Margarita Karovska, Costas Papaliolios, & J. T. Armstrong	1131
ABSOLUTE DIMENSIONS OF THE M-TYPE ECLIPSING BINARY YY GEMINORUM (CASTOR C): A CHALLENGE TO EVOLUTIONARY MODELS IN THE LOWER MAIN SEQUENCE © Guillermo Torres & Ignasi Ribas	1140
THE CHEMICAL COMPOSITION OF CARBON-RICH, VERY METAL POOR STARS: A NEW CLASS OF MILDLY CARBON RICH OBJECTS WITHOUT EXCESS OF NEUTRON-CAPTURE ELEMENTS    Wako Aoki, John E. Norris, Sean G. Ryan, Timothy C. Beers, & Hiroyasu Ando	1166
INFRARED SIGNATURES OF PROTOPLANETARY DISK EVOLUTION Kenneth Wood, C. J. Lada, J. E. Bjorkman, Scott J. Kenyon, Barbara Whitney, & Michael J. Wolff	1183
INCLUSION OF TURBULENCE IN SOLAR MODELING L. H. Li, F. J. Robinson, P. Demarque, S. Sofia, & D. B. Guenther	1192

	Page
THREE-DIMENSIONAL MODEL OF THE STRUCTURE AND EVOLUTION OF CORONAL MASS EJECTIONS  M. Tokman & P. M. Bellan	1202
OBSERVATIONS OF CORE FALLBACK DURING CORONAL MASS EJECTIONS YM. Wang & N. R. Sheeley, Jr.	1211
SOLAR DISAPPEARING FILAMENT INSIDE A CORONAL HOLE 1. M. Chertok, E. I. Mogilevsky, V. N. Obridko, N. S. Shilova, & H. S. Hudson	1225
A COMPARISON OF SOLAR p-MODE PARAMETERS FROM THE MICHELSON DOPPLER IMAGER AND THE GLOBAL OSCILLATION NETWORK GROUP: SPLITTING COEFFICIENTS AND ROTATION INVERSIONS  J. Schou, R. Howe, S. Basu, J. Christensen-Dalsgaard, T. Corbard, F. Hill, R. Komm, R. M. Larsen, M. C. Rabello-Soares, & M. J. Thompson	1234
INFRARED SPACE OBSERVATORIES: HOW TO MITIGATE ZODIACAL DUST INTERFERENCE P. Gurfil, J. Kasdin, R. Arrell, S. Seager, & S. M. Nissanke	1250
FLUID DESCRIPTION OF RELATIVISTIC, MAGNETIZED PLASMA R. D. Hazeltine & S. M. Mahajan	1262
CHARGE TRANSFER OF O <sup>5+</sup> AND O <sup>4+</sup> WITH CO AT keV ENERGIES H. Gao & Victor H. S. Kwong	1272
DOUBLY IONIZED THORIUM: LASER LIFETIME MEASUREMENTS AND TRANSITION PROBABILITY DETERMINATION OF INTEREST IN COSMOCHRONOLOGY  E. Biémont, P. Palmeri, P. Ouinet, Z., G. Zhana, & S. Svanbera	1276

